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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,317	09/08/2005	Alexander Gorban	22193-00009-US1	1461

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CONNOLLY BOVE LODGE & HUTZ LLP  
(FOR CABINET BEAU DE LOMENIE)  
P.O. BOX 2207  
WILMINGTON, DE 19899-2207

EXAMINER
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DAVIS, MARY ALICE

ART UNIT	PAPER NUMBER
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3748

NOTIFICATION DATE	DELIVERY MODE
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07/09/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent@cblh.com

### Office Action Summary

**Application No.**

10/521,317

**Applicant(s)**

GORBAN, ALEXANDER

**Examiner**

MARY A. DAVIS

**Art Unit**

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
4a) Of the above claim(s) 3, 8-14, 16 and 18-22 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 2, 4-7, 15 and 17 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 14 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4-5 recite limitations to "said second member". What is the second member is the applicant referring to? There is insufficient antecedent basis for this limitation in the claim. Did the applicant mean "the other of said male or said female member"?

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. ***Claims 1-2, 4-7, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over BRODOV ET AL (Russian Patent No. 2 140 018 C1) in view of either one of PAYNE (U.S. Patent 3,299,822) or in view of VARADAN ET AL (U.S. Patent 6,093,004).***

Regarding claim 1, BRODOV ET AL discloses:

- A rotary screw machine of volume type comprising a body (6) having a main axis X (O in BRODOV ET AL), two members consisting of a male member (1) and a female member (5) surrounding said male member (see Figure 10), wherein an outer surface of the male member defines a male surface (see Figure 10) and an inner surface of the female member defines a female surface (see Figure 10), said male and female surfaces having respective axes  $X_m$  (O1-O1) and  $X_f$  (O-O) that are parallel and spaced apart by a length E (see Figures 9-10 (e)), said male and female surfaces defining at least one working chamber (see Figure 10) by formation of linear contacts of said male and female surfaces and relative displacement of said male and female members (see Figure 10), said male and female surfaces being further defined about said axes  $X_m$  and  $X_f$  by a nominal profile in a cross section of the mechanism (see Figure 10), said profile of the male surface defining a male profile having an order of symmetry  $N_m$  (see Figure 10 which shows the order of symmetry of the male member is 3) with respect to a center  $O_m$  (O1) located on said male axis  $X_m$  (see Figure 10), said profile of the female surface defining a female profile having an order of symmetry  $N_f$  with respect to a center  $O_f$  located on said female axis  $X_f$  (see Figure 10, where the order of symmetry of the female profile is 2), said rotary screw machine further having a main synchronizing coupling (7) comprising a crank like mechanism generating an eccentricity E between said main axis X and one of the axes (see Figure 9, which shows that the eccentric attached to (7) generates an eccentricity between the main axis O and the axis (O1-O1)),

- characterized in that a first one of said male member and said female member is hinged in said body (see Figure 9, and Page 13, 2<sup>nd</sup> Full Paragraph) and is able to rotate on itself about its fixed axis according to a rotational motion (see Figure 9 and Page 13-14),
- in that said crank like mechanism is connected to the other of said male member or said female member not hinged in said body to allow the axis of said other of said male member or said female member to revolve about the fixed axis of said first one of said male member and said female member according to an orbital revolution motion having said length E as a radius (see Figures 9-10, and Page 13-14), and
- in that said rotary screw machine comprises a main synchronizer synchronizing said swiveling motion and said orbital revolution motion, one with respect to the other, so that said male and female surfaces mesh together (see Figures 9-10, and Page 13-14).

Regarding claim 2, BRODOV ET AL discloses:

- rotational transmission means connected to said crank organ or to said first member (see Figures 9-10, Page 13-14).

Regarding claim 4, BRODOV ET AL discloses:

- said male and female surfaces are brought in mechanical contact forming a kinematic pair allowing the transmission of motion between said first and second members (see Figure 10, which shows that the male and female surfaces are brought into mechanical contact, and it is inherent that if they are brought into

mechanical contact that the members are capable of transmitting the motion between them).

Regarding claim 5, BRODOV ET AL discloses:

- an additional synchronizer (see Figure 9), linked to said body and allowing said second member to rotate about its axis (see Figures 9-10, Pages 13-14).

Regarding claim 6, BRODOV ET AL discloses:

- said additional synchronizer comprises a planetary gear transmission (see Figures 9-10, Pages 13-14).

Regarding claim 7, BRODOV ET AL discloses:

- rotational transmission means connected to said crank organ and to one of said male or female member (it is inherent that a rotational transmission means is connected to the crank organ and to one of said male or female members via the crankshaft (7), in order to provide the rotational input to allow the male and female members to move generating meshing pockets to transfer the working fluid from the inlet to the outlet of the machine).

Regarding claim 15, BRODOV ET AL discloses:

- said female order of symmetry  $N_f$  ( $N_f = 2$ ) is equal to  $N_m - 1$  ( $N_m = 3$  and therefore  $N_f = N_m - 1$ ).

Regarding claim 17, BRODOV ET AL discloses:

- said male or said female surfaces can degenerate into cylindrical surfaces (see Figure 10).

BRODOV ET AL further discloses additional synchronizing mechanisms using crank-like mechanisms and eccentricities between the male and female surfaces (see Figures 3-8, Pages 11-13).

However, BRODOV ET AL fails to disclose the male and female members having helical surfaces. PAYNE teaches male and female surfaces being helical surfaces (see Figures 5 and 7). VARADAN ET AL also teaches male and female surfaces being helical surfaces (see Figures 1-6).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have helical surfaces in the rotary machine of BRODOV ET AL, in order to increase the number of working chambers, and therefore, improving the capacity of the rotary machine.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-2, 4-7, 15, and 17 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

6. With regards to the 103(a) rejection of claims 5-7, applicant argues that neither PAYNE nor BRODOV teaches the claimed invention. The Examiner disagrees, and has put forth a new rejection covering all of the elected claims using these two references. BRODOV discloses the synchronizing mechanism of the applicant's invention, however, fails to disclose the synchronizing mechanism in a helical apparatus. PAYNE teaches a helical apparatus, where multiple chambers are formed to allow the working fluid to

progress thru the machine. An obvious combination of the machine of BRODOV with PAYNE is discussed above, as well as, an obvious combination with VARADAN ET AL.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

8. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY A. DAVIS whose telephone number is (571)272-9965. The examiner can normally be reached on Monday thru Thursday; 6:30 am - 5:00 pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/  
Supervisory Patent Examiner, Art Unit 3748

/Mary A Davis/  
Examiner, Art Unit 3748